APPENDIX F
RESPONSE TO PUBLIC COMMENTS

1) COMMENT: Mike Horse Creek is the location of the largest historic mining operation in the Upper Blackfoot headwaters. This mining operation is responsible for the construction of the tailings impoundment located at the confluence of Beartrap Creek and Mike Horse Creek, which is the source of extensive downstream tailings deposition as a result of the 1975 breach of the dam. Furthermore, as your research reveals, Mike Horse Creek accounts for "an average of 73% of the downstream metal loads at Beartrap Creek site BRSW-23, and 61% of the load at Beartrap Creek site BRSW-38" during high flow conditions. Additional investigation, including that by the Resource Protection Planning Bureau, would prove invaluable to understanding the sources of loading in the Mike Horse segment. As with the other listed segments currently under the Temporary Water Quality Standards petition for the Upper Blackfoot headwaters, the Mike Horse Creek segment already affords the TMDL planning effort a wealth of data from which to work. Additionally, the fieldwork to collect surface water monitoring data will continue until at least 2008 under the current Temporary Water Quality Standards petition. This provides an opportunity to better understand the dynamics of Mike Horse Creek and its influence on the Blackfoot headwaters.

Listing Mike Horse Creek simply as a "source" limits both the documentation of load-source origins and the assessment of performance-based load allocations within this half-mile stream stretch. Furthermore, stream restoration for Mike Horse Creek is not addressed under its current designation, either with the macroinvertebrate and periphyton-communities research, or with the formulation of a stream restoration plan that could include recommendations for physical restoration as well as the biological restoration. For these reasons, the Remediation Division is perplexed and concerned as to why this segment of Mike Horse Creek currently listed as part of the Temporary Water Quality Standards for the Upper Blackfoot Mining Complex is not included (listed) as impaired in the Water Quality Restoration Plan for Metals in the Blackfoot Headwaters TMDL Planning Area. We request that Mike Horse Creek be listed as impaired and not be listed as a source.

> **RESPONSE:** The performance-based allocation approach for Beartrap Creek (Section 4.4.3) in the public review document did specifically address the Mike Horse Creek drainage and associated metals loading sources within this drainage. Given the very high metals loading from Mike Horse Creek and the significant flow contributions from Mike Horse Creek to Beartrap Creek, it would be impossible to meet the restoration goals in Beartrap Creek without performing substantial cleanup of identified sources in the Mike Horse Creek drainage. This could require significant investigations into possible contributing metals loading sources beyond those identified in Section 4.4.3 as would be the case for any contributing drainage or source area where B-1 standards cannot be met by addressing currently identified loading sources. Nevertheless, it is possible to meet B-1 standards within Beartrap Creek and still be above the standards in Mike Horse Creek. Under such a scenario, the development of TMDLs and the application of restoration targets in Mike Horse Creek may result in the need for more stringent cleanup and investigation measures for metals loading sources in the Mike Horse Creek drainage. Therefore, the development of restoration targets, TMDLs, and allocations specific to

Mike Horse Creek has been added to Section 4.0 as suggested. Such an approach is consistent with the existing temporary water quality standards that also apply to Mike Horse Creek (ARM 17.30.630(d)(i)).

The physical habitat related impairment conditions within Mike Horse and Beartrap Creeks will be addressed in the *Blackfoot Headwaters Planning Area Water Quality and Habitat Restoration Plan and TMDL Submittal*, which is currently under development.

2) COMMENT: Citing the beneficial use support guidelines for determining reference condition is inappropriate. This report only gives guidelines on how to determine reference condition. It does not provide any numerical criteria for targets. Besides there are several approaches for determining reference condition. Which approach did you use? Are you comparing to regional reference condition or using an internal reference site? Are you using a paired watershed approach or modeling? Are you comparing to historical data or is reference condition based on what you found in the literature or are you relying on some expert's best professional judgment? What is your target based on? Are you using a multimetric index approach or the Shannon diversity index or something else?

RESPONSE: The incorrect citation has been corrected, with updated information on reference condition approaches to be used and MDEQ protocol. This information is included within Appendix A under *Aquatic Life Support Restoration Targets*.

3) COMMENT: Do these streams have an important fishery? Are the fish impacted by elevated metals? If so, did you consider using some measure of fish assemblages or populations as a target?

RESPONSE: Targets have been developed with focus on two types of biota: macroinvertebrate and periphyton, in addition to water quality chemistry and sediment chemistry related targets. These targets are sufficient for protection of the fishery resource relative to the pollutants of concern and are consistent with standard MDEQ field monitoring procedures often used for obtaining sufficient credible data and making beneficial use determinations.

4) COMMENT: The selection of targets is appropriate but the TMDL plan did not provide enough detail. For example, the sediment metals target was described but not specified. The target should not be left open ended. Can't you specify the target while acknowledging the uncertainty and then describe how the target can be adjusted in the future when there is more certainty? You must have some idea what the target should be?

The biological targets have the same problem. What do you mean by 75% of reference condition? How did you determine reference condition? How certain are you about reference condition? What is the biological target? Should more data be collected to refine the biological targets? If so, how should this be done?

RESPONSE: Additional details concerning the sediment metals concentration target and how it is applied have been added to Section 1.2.3 and Appendix A, with examples

on its application within target setting Sections 2.4.1, 2.5.1 and 2.5.2, 3.4.1, 4.4.1, and 5.4.1. No specific values have been used due to a high level of uncertainty concerning the use of any such value at this time, in part due to the wide range of literature values associated with toxic conditions for any given metals concentration in sediment.

The use of 75% of reference condition has been eliminated in the target setting sections identified above in favor of wording that states that biological targets (macroinvertebrate and periphyton) must meet existing MDEQ protocol for making full support conclusions for beneficial uses, as discussed within *Aquatic Life Support Restoration Targets* within Appendix A. It is pointed out in this section of Appendix A that the goal is to be equal to the reference condition, but the use of 75% value accounts for variations in natural systems and analytical methods used to compare conditions in one stream with conditions in another. Even though existing MDEQ protocol (MDEQ, 2002) utilizes a 75% value to represent anticipated variations associated with naturally occurring conditions among streams, not specifically including this 75% value in the target recognizes that future protocols and improved reference condition information could lead to the use of a value greater than 75% if less variability is anticipated between the target and reference stream. Nevertheless, more data is not a requirement for determining reference conditions given the existence of regional reference conditions as discussed in Appendix A.

5) COMMENT: Concerning the metals target: I believe that the SCD criteria states that any chronic criteria exceedance cannot be more than 10%. This should be confirmed.

RESPONSE: We agree with the above noted criteria and have made changes to all of the target sections in the document to reflect this criteria.

6) COMMENT: (in reference to Sections 2.4.3 and 3.4.3) The Water Quality Restoration Plan includes two categories of nonpoint source metals impairment potentially requiring load allocations. The first category is identified sources and the second is other potential sources not yet identified. Please address the rationale for moving "natural background metals loading" from Category Two into Category One. This move is confusing in the load allocations sections for Sandbar Creek, Poorman Creek and Swansea Gulch since the only natural background metals-loading documentation cited in the plan is for Paymaster Creek.

RESPONSE: The reason for shifting natural background to Category One is because it is of unknown value. Even if very small, it has to be in Category One. Including it in Category Two is a potential problem since that would mean that all of the allowable load is already allocated to the known sources in Category One at a loading rate that equals the TMDL and thus equals the standard. The natural background load would then need to equal zero to avoid exceeding the standard and associated TMDL targets. Even if very low, natural background loading needs to either go in Category One or the allowable/allocated load to human sources needs to be reduced by the natural background load, which is unknown in most cases and therefore must be combined with known human loading to equal the TMDL.

7) COMMENT: The Remediation Division would like to clarify that, under CECRA, cleanup levels for soils, sediments, and waters are typically established through human health and ecological risk assessments and compliance with environmental laws. Therefore, compliance with the restoration targets (i.e. macroinvertebrate and periphyton communities, and the assumptions that achieving the TMDLs is expected to address sediment toxicity issues) identified in the TMDL document does not mean that additional cleanup will not be necessary under CECRA.

> **RESPONSE:** This comment has been addressed by adding the following wording throughout the target setting sections: "It is important to note that the above targets represent minimum requirements for protecting beneficial uses identified within Montana's Surface Water Quality Standards, and are based on interpretations of available data presented within this plan. Other regulatory programs with water quality protection responsibilities may impose additional requirements to ensure full compliance with all appropriate local, State and Federal laws."

8) COMMENT: Page 5-13, Section 5.3.3.2 (5.3.2.2?), last paragraph: Please explain the rationale for the change from identifying these tributaries "as sources of metals loading" to "tributaries containing detectable concentrations that periodically exceed the numeric water quality standards."

> **RESPONSE:** Both terms appropriately describe the noted tributaries. Under the Remaining Sources allocations discussion within Section 5.4.3.2, these tributaries are described as sources of metals loading to the Blackfoot River, although the data indicate that the restoration targets could be met in the Blackfoot River without requiring any load reductions in these tributaries. Nevertheless, load allocations equal to B-1 numeric standards are applied for the metals of concern as a margin of safety and in recognition of the need to possibly pursue detailed restoration planning in one or more of these tributary drainages.

9) COMMENT: Pages 6-8 and 6-9, Section 6.3.2.1: The Remediation Division understands the purpose of the additional monitoring from a TMDL perspective. We want to clarify that this sampling may not fulfill CECRA sampling requirements to determine the extent of and risk posed by contamination and evaluating remedial actions and that potentially liable persons may need to conduct additional sampling.

> **RESPONSE:** Wording has been added to this and other sections within the document to stress the above point (reference response to Comment 7 above). The following wording has been added to Section 6.3.2 to help clarify the purpose of Sections 6.3.2.1 and 6.3.2.2 and further incorporate the above comment: "The focus of the ..... monitoring is to address water quality and beneficial use support per Montana's State Surface Water Quality Standards within the context of TMDL development and implementation. Specific monitoring requirements beyond those discussed ..... will typically be imposed as part of any regulatory cleanup effort such as efforts associated with the UBMC and/or efforts associated with any of the regulatory options discussed in Section 6.2.1. These monitoring requirements may be associated with the protection and cleanup of surface

waters in addition to other media such as soils or ground water, and may impose significant additional sampling requirements to further determine the extent of and risk posed by contamination in addition to requiring evaluation of specific remediation actions."

10) COMMENT: The monitoring strategy description appears to have a tremendous amount of uncertainty. It mostly describes current data collection efforts or provides a very general recommendation about what data "should" be collected in the future. It does not describe in very much detail how the data will be collected and assessed for making future decisions about sources, implementation success, beneficial use support, etc. DEQ should provide more guidance for future water quality monitoring. This could include a study design framework that clearly describes a well thought-out iterative and/or tiered approach to data collection that identifies data needs and specifies how the data should be collected and assessed for making future adaptive management decisions.

DEQ should also provide more guidance for effectiveness monitoring. This should include a study design that describes the location of sampling sites, data collection methods, data collection frequency, and a detailed description of how the data shall be assessed. There appears to be a tremendous amount of uncertainty in this portion of the document. Effectiveness monitoring is not necessarily equivalent to post-implementation monitoring. It is often also needed during implementation in order to determine the speed of recovery, trends, or to document success or failure before a restoration activity is fully implemented throughout the entire watershed. In other words, effectiveness monitoring can also provide data for making adaptive management decisions.

RESPONSE: We agree that the above recommendations should be part of any monitoring plans developed to satisfy the monitoring strategy as defined in this document, but many of these additional details are outside the intended scope of Section 6.3 *Monitoring Strategy*. Additional responses to the above comments are divided into the three parts of this section of the document:

1) UBMC Water Monitoring Requirements (Section 6.3.1) - This section of the document does reference detailed water quality monitoring and source assessment as required by the temporary standards process and the MPDES permit.
2) Monitoring Strategy for the Remainder of the Blackfoot Headwaters Planning Area: Monitoring Needed for Further Source Assessment and Restoration Planning (Section 6.3.2.1) - The intent of this portion of the monitoring strategy is to provide direction on general locations and monitoring goals from which to develop the detailed studies and plans as envisioned in the above comment. Additional detail is provided where appropriate, and some additional detail concerning monitoring goals has been added. To help ensure that future work is done in a manner consistent with MDEQ protocols and information needed for making impairment determinations, the following language is included at the beginning of this section: "At a minimum, any monitoring plans and activities that address this part of the monitoring strategy should be reviewed by MDEQ to ensure consistency with the goals of this plan, MDEQ

monitoring and assessment protocols, data requirements for beneficial use determinations, and data requirements associated with specific remediation programs."

3) Monitoring Strategy for the Remainder of the Blackfoot Headwaters Planning Area: Implementation Monitoring (Section 6.3.2.2) – A primary focus of TMDL implementation monitoring is to track progress toward meeting restoration targets. Table 6-1 has been added to this section to summarize target related monitoring locations and parameters from throughout the document. Additional details for other forms of implementation monitoring specific to individual sources are not provided. As stated in this section: "Efforts to assess the effectiveness of specific restoration activities focused on individual sources or source areas will tend to be an inherent part of the specific regulatory program/approach utilized ..... At this time it would not be appropriate to identify all of these monitoring details, although it is expected that there would be some overlap with efforts to evaluate attainment of the restoration targets discussed below."

11) COMMENT: Is Asarco doing anything to correct its problems?

RESPONSE: This document provides a description of significant ASARCO planning and related cleanup efforts underway within the UBMC.

12) SPECIFIC LEGAL AND TECHNICAL COMMENTS: The following comments address specific legal and technical considerations. Changes were made as noted:

- **COMMENT:** Page 1-10, Section 1.4, 1st paragraph, last sentence: "Legal boundaries" as defined through CECRA (any site or area where a hazardous or deleterious substance has been deposited, stored, disposed of, placed, or otherwise come to be located, §75-10-701(4)(a)(ii) MCA) may be more appropriate than "formal geographic boundaries." ARCO and ASARCO have not completed the RI/FS that will delineate the UBMC facility boundaries.

  RESPONSE: The suggested change was made.

- **COMMENT:** Page 2-5, Section 2.4.1, 1st paragraph: The document (including Appendix A) intermingles the terms "domestic use standards," "guidance," and "narrative standards" when referring to the WQB-7 standards for iron and manganese. One term should be used consistently to avoid confusion, and "narrative standards" is the most appropriate term.

  RESPONSE: The terminology used in this document varies depending on the context, although the term "guidance" is the preferred terminology consistent with WQB-7. Nevertheless, some changes were made to provide better consistency.

- **COMMENT:** Page 4-13, Section 4.4.3, Mike Horse Creek Drainage, 1st paragraph, 4th sentence: The USFS/ASARCO ongoing negotiations only impact the Lower Mike Horse Creek Mine Waste because of its location on USFS property. The Upper Mike Horse Seepage Area reclamation activities are located on ASARCO property and, therefore, are currently bound by the 2004 deadline as outlined in Table 4-1 (Appendix B) of the

Temporary Water Quality Standards for the Upper Blackfoot Mining Complex. Please revise to reflect this difference in ownership.

RESPONSE: This sentence has been removed since it is not a critical component of this plan.

- **COMMENT:** Page 5-9, Section 5.3.2.1, 1st paragraph, 2nd sentence and Page 5-12, Section 5.3.3.2, 1st paragraph, 1st sentence: Please change "downstream boundary of UBMC" to "UBMC mine reclamation program boundary under the Implementation Plan." DEQ's Remediation Division has not established a facility boundary at the UMBC.

  RESPONSE: The term "UBMC Implementation Plan boundary" has been applied to address this concern throughout the document.

- **COMMENT:** Page 5-11, Section 5.3.2.1, last bullet, 3rd sentence: For clarification, please note that only portions of the Paymaster Voluntary Cleanup Plan were approved by DEQ. A number of issues including groundwater and its impacts to Paymaster Creek still remain unresolved.

  RESPONSE: An additional sentence reflecting this note has been added to the above referenced section.

- **COMMENT:** Page 5-12, Section 5.3.3.2, 2nd paragraph, 1st sentence: Please note that this information, as it pertains to CECRA, establishes portions of the Blackfoot River downstream from Pass Creek as part of the UBMC. Please refer to Specific Comment 1.

  RESPONSE: A sentence has been added to Section 5.3.2.2 to reflect this fact.

- **COMMENT:** Appendix D, Page 6-5, Section 2.2, 1st paragraph: As a result of the new Brownsfields legislation, it is doubtful there will be an MOA and therefore, the current draft is moot. Please delete this paragraph.

  RESPONSE: The paragraph has been removed.

13) EDITORIAL COMMENTS: There were a number of minor technical, regulatory, and editorial corrections where changes to the document were made as suggested.

14) COMMENT (no response required): This document is very well written and easy to read. Excellent job!